eSSENCE

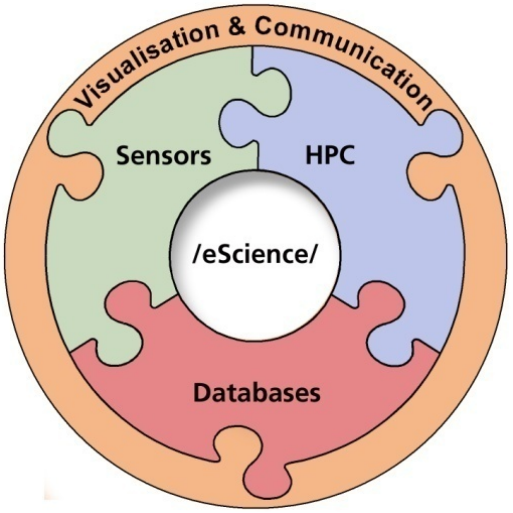
Magnus Ullner
vice-coordinator at LU

– An e-Science SRA

- 20 Strategic Research Areas (SRAs) were defined in the 2008 Government Bill on Research Policy
  - Cancer, Diabetes, Epidemiology, e-Science, Molecular biosciences, Nanoscience and nanotechnology …
- 43 research environments (also called SRAs) were selected for financing 2010-2014 through Swedish Research Council, FAS, Formas, VINNOVA, and the Swedish Energy Agency

What is e-Science?

- A collective term for scientific endeavours making advanced use of computers, storage and networks
  - high-performance computing
  - sensor-based research
  - database-based research



- Computational tools and methods to
  - solve scientific problem
  - optimally utilise resources
  - handle distributed resources

e-Science Initiatives in Sweden

- SRA: eSSENCE (LU, UmU, UU)
  www.essenceofescience.se
- SRA: SeRC (KTH, SU, KI, LiU)
  www.e-science.se
- Local: Chalmers e-Science Centre
  www.chalmers.se/rss/e-science-en

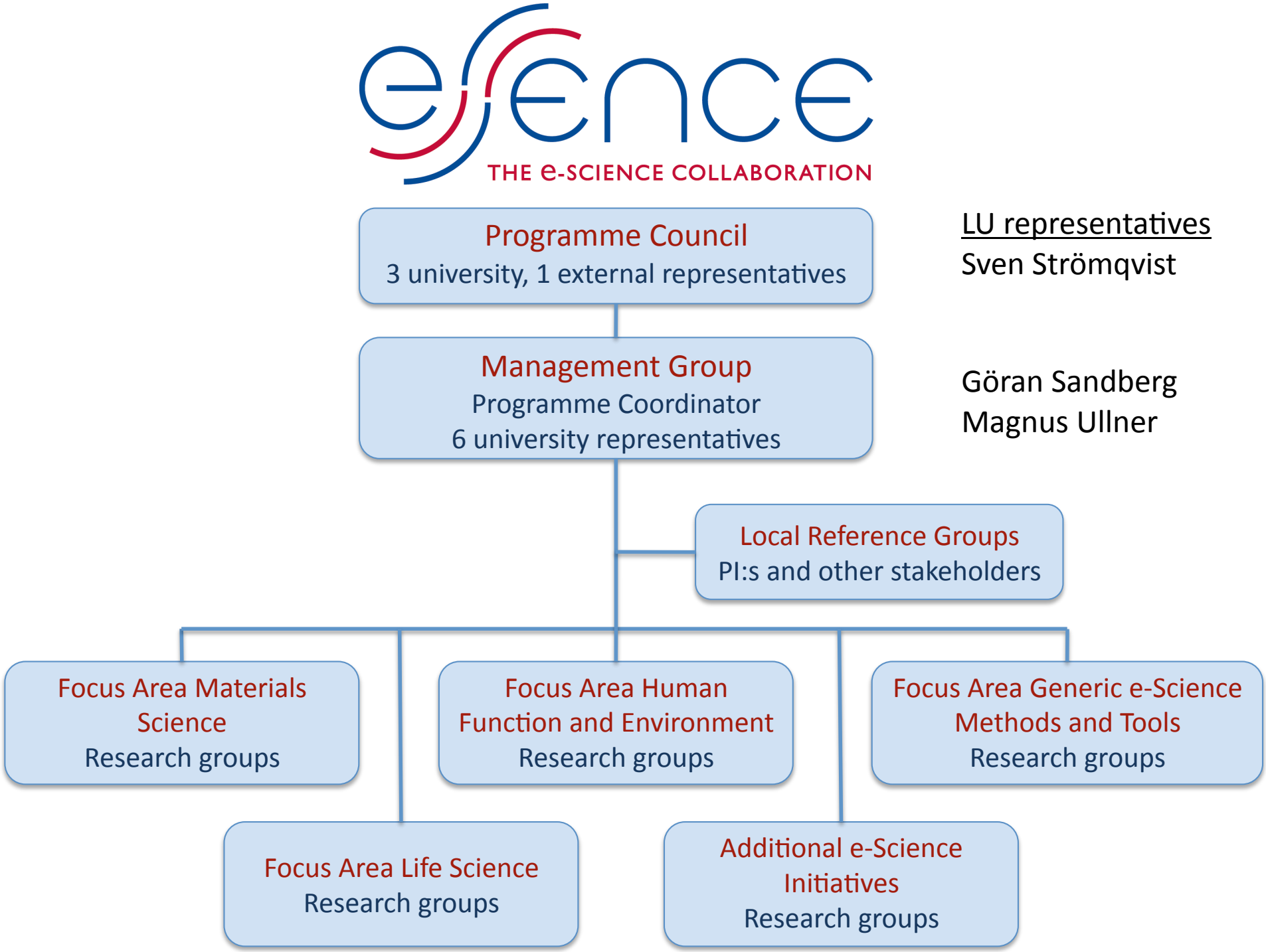
essence
THE e-SCIENCE COLLABORATION

SeRC
Swedish e-Science Research Centre

– Budget

University	2010	2011	2012	2013	2014
LU (35 %)	3 500	4 900	9 100	9 100	9 100
UmU (20 %)	2 000	2 800	5 200	5 200	5 200
UU (45 %)	4 500	6 300	11 700	11 700	11 700
Total	**10 000**	**14 000**	**26 000**	**26 000**	**26 000**

- 90 % for projects at the universities
- 10 % for common expenses
  - Joint activities such as workshops, conference participation, involvement in higher education, coordination, etc.
  - A post-doc programme supporting research areas and collaborations covering more than one university (2012 -)

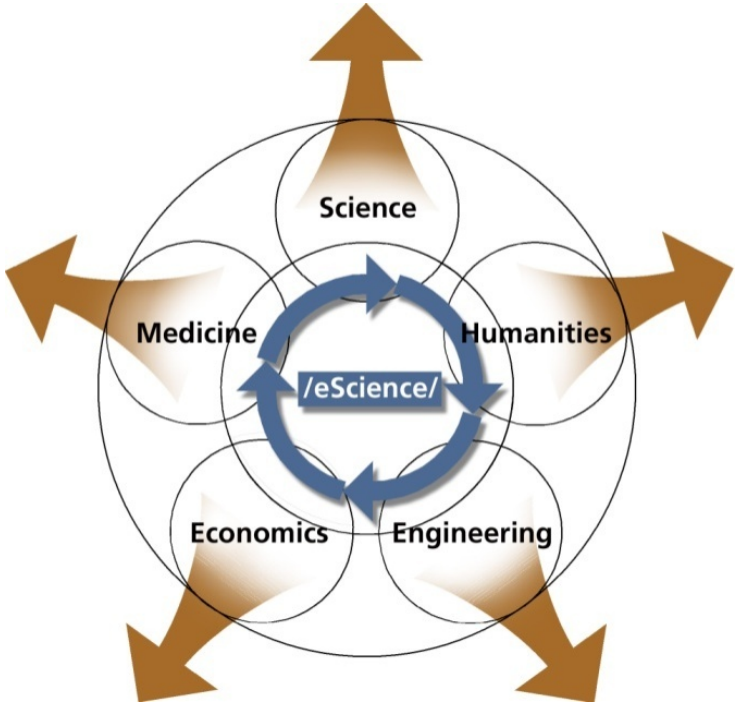


LU representatives
Sven Strömqvist

Göran Sandberg
Magnus Ullner

at Lund University

- Research at five faculties
  - Science
  - Engineering
  - Medicine
  - Economics and Management
  - Humanities and Theology



- Collaborations between faculties and departments

eSENCE at Lund University

- Human Function and Environment
  - Geo-demographic data (Physical Geography and Ecosystems Analysis/Economic Demography)
  - Sensor-based research in the humanities and medicine (Humanities Laboratory/Lund Bioimaging Centre)
  - Organ matching for transplantation (Cardiothoracic Surgery/ Computer Science)
  - Monitoring during childbirth (Reproductive Epidemiology/ Computer Science)

eSENCE at Lund University

- Materials Science
  - Nanomaterials (Theoretical Chemistry, Solid State Physics)
  - Data processing for computational mechanics (Fluid Mechanics/ Mathematics, Solid Mechanics/Structural Mechanics)
- Generic e-Science Methods and Tools
  - Grid middleware (Experimental High-Energy Physics)
  - Large scale visual and semantic processing (Mathematics/ Computer Science)
- Other e-Science Initiatives
  - Classification tool for bird singing (Mathematical Statistics/ Molecular Ecology and Evolution Lab/Biology)

– e-Infrastructure

- SNIC – Swedish National Infrastructure for Computing
  - **Lunarc, Lund**
  - **HPC2N, Umeå**
  - **UPPMAX, Uppsala**
  - C3SE, Göteborg
  - NSC, Linköping
  - PDC, Stockholm
- SUNET – Swedish University Computer Network